R13

B.Tech III Year II Semester (R13) Supplementary Examinations December 2016
NEURAL NETWORKS & FUZZY LOGIC
(Electrical and Electronics Engineering)

Time: 3 hours   Max. Marks: 70

PART – A
(Compulsory Question)
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1   Answer the following: (10 X 02 = 20 Marks)
   (a)   List various AI approaches.
   (b)   Draw the basic architecture of Artificial Intelligence system.
   (c)   What are the basic elements of artificial neuron?
   (d)   Define learning.
   (e)   What is meant by system identification?
   (f)   Draw the control system based ANN architecture.
   (g)   What are the basic components of fuzzy logic system?
   (h)   Define cardinality and relative cardinality.
   (i)   Draw the basic block diagram of fuzzy control system.
   (j)   What are the parameters controllable in power plants using fuzzy logic?

PART – B
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2   (a)   What is the basic motivation towards the development of AI approaches? Explain.
   (b)   What is meant by rule based system? Explain its working.

OR

3   Explain the following AI concepts in detail:
   (a)   Symbolic reasoning system.
   (b)   Expert system.

UNIT – II

4   (a)   Determine 3-input NAND gate and 3-input NOR gate realizations using McCulloch Pitts model.
   (b)   For the following ANN, find the output with input X = [0 1] and unipolar sigmoid function as an activation function.

OR
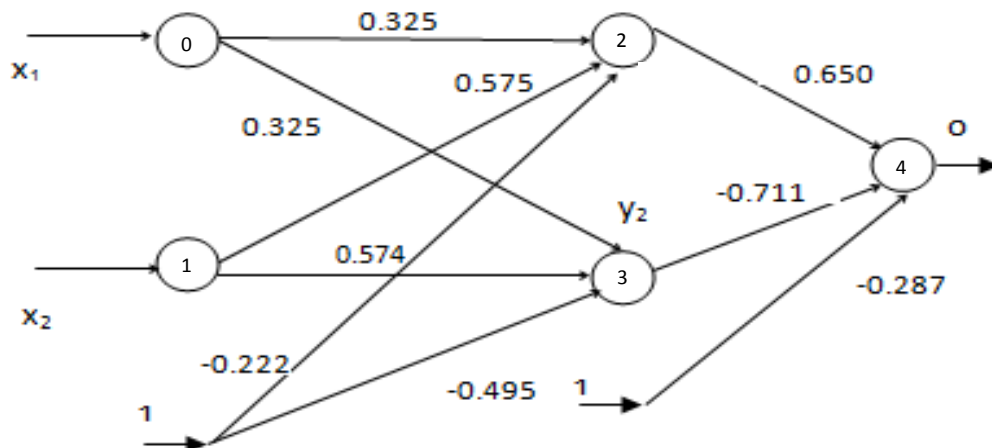
5 Determine output equations and weight update equations for the following ANN using Back propagation algorithm.
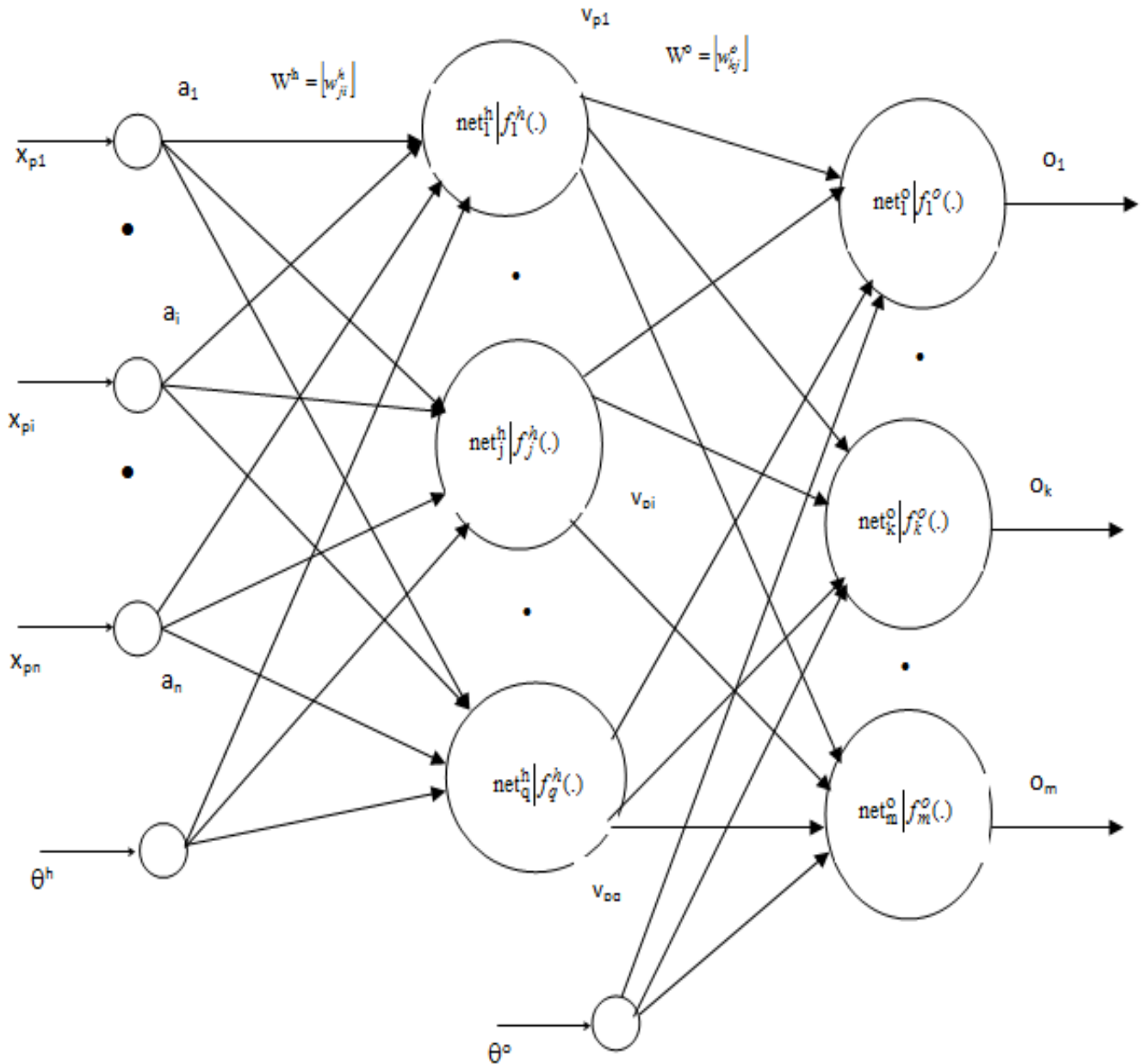
6 What is meant by load forecasting problem? Explain the role of ANN in load forecasting.

OR

7 Discuss how ANN is useful to solve control system problem.

UNIT – IV

8 What are the various properties and operations of fuzzy sets? Explain each of them with suitable examples.

OR

9 Explain in detail the design procedure of fuzzy logic controller with a simple example.

UNIT – V

10 Discuss how fuzzy logic is useful for Industrial applications.

OR

11 What is the role of fuzzy logic in Biomedicine? Explain.

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